1. 5,641,625, Jun. 24, 1997, Cleaving double-stranded DNA with **peptide** **nucleic** acids; David J. Ecker, et al., 435/6; 536/24.3 :IMAGE AVAILABLE:

US PAT NO: 5,641,625 :IMAGE AVAILABLE: L4: 1 of 3

ABSTRACT:
Peptide **nucleic** acids and analogues of **peptide** **nucleic** acids are used to form duplex, triplex, and other structures with nucleic acids and to modify nucleic acids. The **peptide** **nucleic** acids and analogues thereof also are used to modulate protein activity through, for example, transcription arrest, transcription initiation, and site specific cleavage of nucleic acids.

2. 5,578,718, Nov. 26, 1996, Thiol-derivatized nucleosides; Phillip D. Cook, et al., 536/27.21, 27.6, 27.8, 27.81, 28.1, 28.4, 28.5, 28.53, 28.54, 55.3 :IMAGE AVAILABLE:

US PAT NO: 5,578,718 :IMAGE AVAILABLE: L4: 2 of 3

ABSTRACT:
Nucleosides and linked nucleosides functionalized to include alkylthiol chemical functionality at ribofuranosyl positions, nucleosidic base positions, or on internucleoside linkages. In certain embodiments, the compounds of the invention further include steroids, reporter molecules, reporter enzymes, lipophilic molecules, peptides or proteins attached to the nucleosides through the alkylthio group.

3. 5,539,082, Jul. 23, 1996, **Peptide** **nucleic** acids; **Peter E.** **Nielsen**, et al., 530/300; 536/18.7, 24.3; 544/242, 264 :IMAGE AVAILABLE:

US PAT NO: 5,539,082 :IMAGE AVAILABLE: L4: 3 of 3

ABSTRACT:
A novel class of compounds, known as **peptide** **nucleic** acids, bind complementary ssDNA and RNA strands more strongly than a corresponding DNA. The **peptide** **nucleic** acids generally comprise ligands such as naturally occurring DNA bases attached to a peptide backbone through a suitable linker.

1. 5,705,337, Jan. 6, 1998, Systematic evolution of ligands by exponential enrichment: chemi-SELEX; Larry Gold, et al., 435/6, 91.2; 935/77, 78 :IMAGE AVAILABLE:

US PAT NO: 5,705,337 :IMAGE AVAILABLE: L12: 1 of 31

ABSTRACT:
This application provides methods for identifying nucleic acid ligands capable of covalently interacting with targets of interest. The nucleic acids can be associated with various functional units. The method also allows for the identification of nucleic acids that have facilitating activities as measured by their ability to facilitate formation of a covalent bond between the nucleic acid, including its associated functional unit, and its target.

2. 5,705,333, Jan. 6, 1998, **Peptide**-based nucleic acid mimics(PENAMS); Vibhakar J. Shah, et al., 435/6, 375, 377; 436/86, 94; 530/300, 333; 536/23.1, 24.3, 24.31, 24.32, 24.5 :IMAGE AVAILABLE:

US PAT NO: 5,705,333 :IMAGE AVAILABLE: L12: 2 of 31

ABSTRACT:
The present invention provides novel nucleic acid mimics (termed "PENAMs") comprising a peptidic backbone and nucleotidic sidechains; the sidechains being oriented in such a way that the PENAM is homomorphous to target nucleic acids with which it can effectively hydrogen bond. Homomorphism is achieved by the incorporation of unusual sterochemical centers, including D-chiral centers and quasi-chiral centers, into the peptidic backbone. The PENAMs are useful for targeting nucleic acid sequences in order to modulate their activity in an "antisense" manner. Targeting can also be used to detect, isolate or modify target nucleic acids.

3. 5,698,391, Dec. 16, 1997, Methods for synthetic unrandomization of oligomer fragments; Phillip Dan Cook, et al., 435/5, 6 :IMAGE AVAILABLE:

US PAT NO: 5,698,391 :IMAGE AVAILABLE: L12: 3 of 31

ABSTRACT:
Methods useful for the determination of oligomers which have specific activity for a target molecule from a pool of primarily randomly assembled oligomers are provided. The disclosed methods involve repeated syntheses of increasingly simplified sets of oligomers coupled with selection procedures for determining oligomers having the highest activity. Freedom from the use of enzymes allows the application of these methods to any molecules which can be oligomerized in a controlled fashion.

4. 5,696,157, Dec. 9, 1997, Sulfonated derivatives of 7-aminocoumarin; Hui-Ying Wang, et al., 514/457; 549/285, 288, 289 :IMAGE AVAILABLE:

US PAT NO: 5,696,157 :IMAGE AVAILABLE: L12: 4 of 31

ABSTRACT:
The present invention describes 7-aminocoumarin dyes that are substituted one or more times at the 3-, 6- and/or 8-positions by a sulfonic acid or a salt of a sulfonic acid, said dyes being useful as fluorescent probes or in the preparation of enzyme substrates, caged probes, or adducts with reducing sugars. The dyes of the invention optionally possess a reactive group useful for preparing fluorescent **conjugates**, which **conjugates** and methods for their preparation are described herein.

5. 5,695,936, Dec. 9, 1997, Reagent and method for the detection of a nucleotide sequence with signal amplification; Bernard Mandrand, et al., 435/6; 935/19, 78 :IMAGE AVAILABLE:

US PAT NO: 5,695,936 :IMAGE AVAILABLE: L12: 5 of 31

ABSTRACT:

Methods for the detection of a nucleotide sequence of interest comprising at least one nucleotide probe marked with a tracer. The methods comprise use of a reagent essentially comprising a linear backbone copolymer having lateral substituents, whose chain consists of a first type of repetitive unit and at least one other type of repetitive unit, in which at least one part of the units of the first type have a lateral substituent comprising a nucleotide unit, such a lateral substituent not being present on the other types of units. Each of said nucleotide units, all of which are identical, comprise at least one nucleotide sequence capable of hybridizing with said sequence of interest and nucleotide sequence capable of hybridizing with a probe, the reagent containing on average more than two of said nucleotide units, in molar equivalents, per mole of polymer. Such a reagent enables signal amplification to be obtained, and therefor lowers the sensitivity threshold. Application, in particular, in the production of tests for the detection of pathogenic organisms, or in the diagnosis of genetic diseases.

6. 5,695,934, Dec. 9, 1997, Massively parallel sequencing of sorted polynucleotides; Sydney Brenner, 435/6; 536/24.3 :IMAGE AVAILABLE:

US PAT NO: 5,695,934 :IMAGE AVAILABLE: L12: 6 of 31

ABSTRACT:
The invention provides a method and materials for sorting polynucleotides with oligonucleotide tags. Oligonucleotide tags of the invention are capable of hybridizing to complementary oligomeric compounds consisting of subunits having enhanced binding strength and specificity as compared to natural oligonucleotides. Such complementary oligomeric compounds are referred to herein as "tag complements." Subunits of tag complements may consist of monomers of non-natural nucleotide analogs, referred to herein as "antisense monomers" or they may comprise oligomers having lengths in the range of 3 to 6 nucleotides or analogs thereof, including antisense monomers, the oligomers being selected from a minimally cross-hybridizing set. In such a set, a duplex made up of an oligomer of the set and the complement of any other oligomer of the set contains at least two mismatches. Preferred antisense monomers include **peptide** **nucleic** acid monomers and nucleoside phosphoramidates having a 3'-NHP(O)(O--)O-5' **linkage** with its adjacent nucleoside. An important aspect of the invention is the use of the oligonucleotide tags for sorting polynucleotides by specifically hybridizing tags attached to the polynucleotides to their complements on solid phase supports. This embodiment provides a readily automated system for manipulating and sorting polynucleotides, particularly useful in large-scale parallel operations, such as large-scale DNA sequencing, mRNA fingerprinting, or the like, wherein many target polynucleotides or many segments of a single target polynucleotide are sequenced simultaneously.

7. 5,688,935, Nov. 18, 1997, Nucleic acid ligands of tissue target; Andrew Stephens, et al., 536/23.1; 435/6, 91.2; 935/77, 78 :IMAGE AVAILABLE:

US PAT NO: 5,688,935 :IMAGE AVAILABLE: L12: 7 of 31

ABSTRACT:
This invention discloses high-affinity oligonucleotide ligands to complex tissue targets, specifically nucleic acid ligands having the ability to bind to complex tissue targets, and the methods for obtaining such ligands. Tissue targets comprise cells, subcellular components, aggregates or cells, collections of cells, and higher ordered structures. Specifically, nucleic acid ligands to peripheral blood mononuclear cells (PBMC), fibrin clots, and carotid arteries are described.

8. 5,686,242, Nov. 11, 1997, Determination of oligonucleotides for therapeutics, diagnostics and research reagents; Thomas W. Bruice, et al., 435/6, 7.1; 536/23.1, 25.3 :IMAGE AVAILABLE:

US PAT NO: 5,686,242 :IMAGE AVAILABLE: L12: 8 of 31

ABSTRACT:
Oligonucleotides which selectively bind to target biomolecules are determined by in vitro assay of a pool of random oligonucleotides for activity against said biomolecules, followed by recovery and characterization of selected oligonucleotides. Oligonucleotides so determined may be utilized for therapeutic, diagnostic and research reagent purposes.

9. 5,684,143, Nov. 4, 1997, Oligo-2'-fluoronucleotide N3'->P5' phosphoramidates; Sergei Gryaznov, et al., 536/23.1, 24.3, 24.5, 25.1 :IMAGE AVAILABLE:

US PAT NO: 5,684,143 :IMAGE AVAILABLE: L12: 9 of 31

ABSTRACT:
A new class of oligonucleotide N3'.fwdarw.P5' phosphoramidates having 2' fluoro substituents are provided that have superior acid stability. The invention includes oligo-2'-fluoronucleotide N3'.fwdarw.P5' phosphoramidates, methods of synthesis, and duplexes and triplexes formed with DNA and RNA. Compounds of the invention are useful where the formation of stable and specific duplex and/or triplex structures is desired, including antisense and/or anti-gene pharmaceuticals, branched DNA components, DNA and/or RNA capture agents, components of DNA-based diagnostic assays, and the like.

10. 5,681,747, Oct. 28, 1997, Nucleic acid sequences encoding **protein** kinase C and antisense inhibition of expression thereof; Russell T. Boggs, et al., 435/375, 6, 69.7, 172.3; 536/24.2; 935/34, 62, 70 :IMAGE AVAILABLE:

US PAT NO: 5,681,747 :IMAGE AVAILABLE: L12: 10 of 31

ABSTRACT:
New nucleic acid sequences are provided which encode 3' untranslated regions of human **protein** kinase C.alpha.. Compositions and methods are provided for the treatment and diagnosis of diseases associated with **protein** kinase C.alpha.. Oligonucleotides are provided which are specifically hybridizable with nucleic acid encoding PKC.alpha.. Methods of treating animals suffering from disease amenable to therapeutic intervention by modulating **protein** kinase C expression with an oligonucleotide specifically hybridizable with RNA or DNA corresponding to PKC are disclosed. Polynucleotide probes for PKC.alpha. are also disclosed.

11. 5,681,702, Oct. 28, 1997, Reduction of nonspecific hybridization by using novel **base**-pairing schemes; Mark L. Collins, et al., 435/6, 87, 91.2; 536/24.3, 24.31, 24.33, 26.3, 26.72 :IMAGE AVAILABLE:

US PAT NO: 5,681,702 :IMAGE AVAILABLE: L12: 11 of 31

ABSTRACT:
Methods are provided for substantially reducing background signals encountered in nucleic acid hybridization assays. The method is premised on the elimination or significant reduction of the phenomenon of nonspecific hybridization, so as to provide a detectable signal which is produced only in the presence the target polynucleotide of interest. In addition, a novel method for the chemical synthesis of isoguanosine or 2'-deoxy-isoguanosine is provided. The invention also has applications in antisense and aptamer therapeutics and drug discovery.

12. 5,672,472, Sep. 30, 1997, Synthetic unrandomization of oligomer fragments; David J. Ecker, et al., 435/6, 5, 91.1; 536/25.3 :IMAGE AVAILABLE:

US PAT NO: 5,672,472 :IMAGE AVAILABLE: L12: 12 of 31

ABSTRACT:

Methods useful for the determination of oligomers which have specific activity for a target molecule from a pool of primarily randomly assembled subunits are provided. The disclosed methods involve repeated syntheses of increasingly simplified sets of oligomers coupled with selection procedures for determining oligomers having the highest activity. Freedom from the use of enzymes allows the application of these methods to any molecules which can be oligomerized in a controlled fashion.

13. 5,670,326, Sep. 23, 1997, Reiterative method for screening combinatorial libraries; Bruce A. Beutel, 435/7.1; 436/501, 518 :IMAGE AVAILABLE:

US PAT NO: 5,670,326 :IMAGE AVAILABLE: L12: 13 of 31

ABSTRACT:
Libraries of compounds such as nucleic acids or peptides are contacted with a target molecule and libraries that have at least one compound that bind with at least a minimum activity are determined by a reiterative process in which a change in the rate of recovery (elimination) of compounds that bind to the target indicates that the library contains

such a compound. The procedure may also be used to determine indirectly the sequence of such compound by employing sublibraries, each of which have a known entity at a known position of the compound.

14. 5,658,751, Aug. 19, 1997, Substituted unsymmetrical cyanine dyes with selected permeability; Stephen T. Yue, et al., 435/34, 4, 6, 29; 436/94, 800; 536/1.11, 25.6, 26.73 :IMAGE AVAILABLE:

US PAT NO: 5,658,751 :IMAGE AVAILABLE: L12: 14 of 31

ABSTRACT:
The invention describes the preparation and use of fluorescent stains for nucleic acids derived from unsymmetrical cyanine dyes comprising a substituted benzazolium ring system **linked** by a methine bridge to a pyridinium or quinolinium ring system having at least one substituent on the pyridinium or quinolinium ring that contains a heteroatom. The presence of the heteroatom-containing substituent results in higher sensitivity to oligonucleotides and larger nucleic acid polymers in a wide range of cells and gels, and for use in analysis of cell structure, membrane integrity or function.

15. 5,656,612, Aug. 12, 1997, Antisense oligonucleotide modulation of raf gene expression; Brett P. Monia, 514/44; 435/6, 91.1, 375; 536/23.1, 24.5 :IMAGE AVAILABLE:

US PAT NO: 5,656,612 :IMAGE AVAILABLE: L12: 15 of 31

ABSTRACT:
Oligonucleotides are provided which are targeted to nucleic acids encoding human c-raf and capable of inhibiting raf expression. The oligonucleotides may have chemical modifications at one or more positions and may be chimeric oligonucleotides. Methods of inhibiting the expression of human raf using oligonucleotides of the invention are also provided. The present invention further comprises methods of inhibiting hyperproliferation of cells and methods of treating abnormal proliferative conditions which employ oligonucleotides of the invention.

16. 5,654,413, Aug. 5, 1997, Compositions for sorting polynucleotides; Sydney Brenner, 536/22.1; 435/6, 320.1; 536/24.2 :IMAGE AVAILABLE:

US PAT NO: 5,654,413 :IMAGE AVAILABLE: L12: 16 of 31

ABSTRACT:
The invention provides a method of tracking, identifying, and/or sorting classes or subpopulations of molecules by the use of oligonucleotide

tags. Oligonucleotide tags of the invention each consist of a plurality of subunits 3 to 6 nucleotides in length selected from a minimally cross-hybridizing set. A subunit of a minimally cross-hybridizing set forms a duplex or triplex having two or more mismatches with the complement of any other subunit of the same set. The number of oligonucleotide tags available in a particular embodiment depends on the number of subunits per tag and on the length of the subunit. An important aspect of the invention is the use of the oligonucleotide tags for sorting polynucleotides by specifically hybridizing tags attached to the polynucleotides to their complements on solid phase supports. This embodiment provides a readily automated system for manipulating and sorting polynucleotides, particularly useful in large-scale parallel operations, such as large-scale DNA sequencing, mRNA fingerprinting, and the like, wherein many target polynucleotides or many segments of a single target polynucleotide are sequenced simultaneously.

17. 5,648,213, Jul. 15, 1997, Compositions and methods for use in detection of analytes; M. Parameswara Reddy, et al., 435/6, 7.1, 7.23; 436/538; 536/23.1 :IMAGE AVAILABLE:

US PAT NO: 5,648,213 :IMAGE AVAILABLE: L12: 17 of 31

ABSTRACT:
Double stranded nucleic acid duplexes serve as universal harvestable and cleavable **link** systems in a variety of different types of immunoassays (e.g., sandwich, competitive, etc.). Depending upon the type of assay, at least one specific component involved in the assay system is attached to a first member of a pair of sequences forming a double stranded nucleic acid (i.e., two oligonucleotides comprising substantially complementary sequences). The assay is carried out in the presence of a support to which is attached an oligonucleotide which is the other member of the pair of sequences forming a double-stranded nucleic acid duplex under hybridization conditions. Upon the hybridization of the two complementary oligonucleotides to form a duplex, the component of the assay system to which the first member of the pair of oligonucleotides is attached may thereby be effectively removed from the solution phase and harvested onto the support. Oligonucleotides bound to a support are reusable in multiple successive assays. Moreover, any given support-bound oligonucleotide can be used in accordance with the present invention for the analysis of a variety of different analytes. In many cases, the assay system includes a label to facilitate quantifying the amount of analyte; in others, the amount of analyte may be determined without the use of any extraneous label.

18. 5,643,780, Jul. 1, 1997, Compositions and methods for modulating RNA

activity through modification of the 5' cap structure of RNA; Brenda F. Baker, 435/375; 424/604, 617; 435/6, 325; 514/44; 536/18.7, 24.5 :IMAGE AVAILABLE:

US PAT NO: 5,643,780 :IMAGE AVAILABLE: L12: 18 of 31

ABSTRACT:
Methods for regulating gene expression in biological experimental systems via modification or removal of the 5' cap structure of targeted ribonucleic acids are disclosed. Modification or removal of the 5' cap structure is achieved in accordance with preferred embodiments utilizing antisense compounds which are complementary to the 5' terminus of the targeted RNA and have attached to them reactive moieties explicitly designed for chemical modification or cleavage of the 5' cap structure of RNA. Compositions that have utility as research reagents and therapeutics for the treatment of diseases are disclosed.

19. 5,637,683, Jun. 10, 1997, Nucleic acid analog with amide **linkage** and method of making that analog; David A. Usher, et al., 536/22.1; 435/6; 536/23.1, 25.3, 25.31, 25.32; 935/76, 77, 78 :IMAGE AVAILABLE:

US PAT NO: 5,637,683 :IMAGE AVAILABLE: L12: 19 of 31

ABSTRACT:
The present invention relates to a nucleic acid analog having the formula: ##STR1## where R is a compound selected from a group consisting of hydrogen, a hydroxyl group, a hydrophilic group or a hydrophobic group,
n is greater than or equal to 2, and
Base is uracil, adenine, guanine, cytosine, thymine or hypoxanthine, with Bases in the analog being the same or different. Further, the present invention relates to a processes for making and using the analog.

20. 5,635,400, Jun. 3, 1997, Minimally cross-hybridizing sets of oligonucleotide tags; Sydney Brenner, 435/320.1, 6, 172.3; 536/22.1, 24.2 :IMAGE AVAILABLE:

US PAT NO: 5,635,400 :IMAGE AVAILABLE: L12: 20 of 31

ABSTRACT:
The invention provides a method of tracking, identifying, and/or sorting classes or subpopulations of molecules by the use of oligonucleotide tags. Oligonucleotide tags of the invention each consist of a plurality of subunits 3 to 6 nucleotides in length selected from a minimally

cross-hybridizing set. A subunit of a minimally cross-hybridizing set forms a duplex or triplex having two or more mismatches with the complement of any other subunit of the same set. The number of oligonucleotide tags available in a particular embodiment depends on the number of subunits per tag and on the length of the subunit. An important aspect of the invention is the use of the oligonucleotide tags for sorting polynucleotides by specifically hybridizing tags attached to the polynucleotides to their complements on solid phase supports. This embodiment provides a readily automated system for manipulating and sorting polynucleotides, particularly useful in large-scale parallel operations, such as large-scale DNA sequencing, mRNA fingerprinting, and the like, wherein many target polynucleotides or many segments of a single target polynucleotide are sequenced simultaneously.

21. 5,623,065, Apr. 22, 1997, Gapped 2' modified oligonucleotides; Phillip D. Cook, et al., 536/23.1; 435/91.1, 91.2, 91.5; 536/23.2, 23.5, 23.51, 23.52, 23.53, 25.1, 25.2; 935/6, 9, 10 :IMAGE AVAILABLE:

US PAT NO: 5,623,065 :IMAGE AVAILABLE: L12: 21 of 31

ABSTRACT:

Oligonucleotides and other macromolecules are provided that have increased nuclease resistance, substituent groups for increasing binding affinity to complementary strand, and subsequences of 2'-deoxy-erythro-pentofuranosyl nucleotides that activate RNase H enzyme. Such oligonucleotides and macromolecules are useful for diagnostics and other research purposes, for modulating **protein** in organisms, and for the diagnosis, detection and treatment of other conditions susceptible to antisense therapeutics.

22. 5,618,709, Apr. 8, 1997, Antisense oligonucleotides specific for STK-1 and method for inhibiting expression of the STK-1 **protein**; Alan M. Gewirtz, et al., 435/172.3; 536/24.5; 935/34 :IMAGE AVAILABLE:

US PAT NO: 5,618,709 :IMAGE AVAILABLE: L12: 22 of 31

ABSTRACT:
Oligonucleotides are provided having a nucleotide sequence complementary to at least a portion of the mRNA transcript of the STK-1 gene. These "antisense" oligonucleotides are hybridizable to the STK-1 mRNA transcript. Such oligonucleotides are useful in treating neoplastic diseases characterized by activation of STK-1 gene expression. The oligonucleotides are also useful as bone marrow purging agents in the treatment of leukemia and metastasized neoplasms.

23. 5,612,212, Mar. 18, 1997, Selective inhibition of cell proliferation by vav antisense oligonucleotides; Alan M. Gewirtz, 435/172.3, 6, 91.1, 91.3, 91.33, 91.4, 320.1, 375; 514/44; 536/23.1, 24.1, 24.3, 24.31, 24.32, 24.33, 24.5, 25.1, 25.3 :IMAGE AVAILABLE:

US PAT NO: 5,612,212 :IMAGE AVAILABLE: L12: 23 of 31

ABSTRACT:
Antisense oligonucleotides specific for the vav proto-oncogene inhibit the proliferation of malignant, but not normal, myeloid cells. The oligonucleotides are therefore useful in the treatment of leukemias, in particular, as bone marrow purging agents. The vav antisense oligonucleotides also selectively inhibit the formation of erythroid cell colonies without effect on megakaryocyte and granulocyte/macrophage colony formation. The oligonucleotides are therefore useful in treating disorders characterized by an elevated hematocrit due to overproduction of erythrocytes.

24. 5,604,097; Feb. 18, 1997, Methods for sorting polynucleotides using oligonucleotide tags; Sydney Brenner, 435/6, 172.3; 536/25.4 :IMAGE AVAILABLE:

US PAT NO: 5,604,097 :IMAGE AVAILABLE: L12: 24 of 31

ABSTRACT:
The invention provides a method of tracking, identifying, and/or sorting classes or subpopulations of molecules by the use of oligonucleotide tags. Oligonucleotide tags of the invention each consist of a plurality of subunits 3 to 6 nucleotides in length selected from a minimally cross-hybridizing set. A subunit of a minimally cross-hybridizing set forms a duplex or triplex having two or more mismatches with the complement of any other subunit of the same set. The number of oligonucleotide tags available in a particular embodiment depends on the number of subunits per tag and on the length of the subunit. An important aspect of the invention is the use of the oligonucleotide tags for sorting polynucleotides by specifically hybridizing tags attached to the polynucleotides to their complements on solid phase supports. This embodiment provides a readily automated system for manipulating and sorting polynucleotides, particularly useful in large-scale parallel operations, such as large-scale DNA sequencing, mRNA fingerprinting, and the like, wherein many target polynucleotides or many segments of a single target polynucleotide are sequenced simultaneously.

25. 5,587,371, Dec. 24, 1996, Texaphyrin-oligonucleotide **conjugates**;

Jonathan L. Sessler, et al., 514/185, 2, 6, 28, 43, 44, 81, 410; 530/345, 391.3, 391.5, 405; 534/11, 13, 15, 16; 536/17.1, 17.3; 540/145, 465, 472 :IMAGE AVAILABLE:

US PAT NO: 5,587,371 :IMAGE AVAILABLE: L12: 25 of 31

ABSTRACT:
Texaphyrins are provided for use as radiation sensitizers. Advantageous properties of texaphyrins for use as a radiation sensitizer include: i) a low redox potential which allows radiation-induced hydrated electrons to flow to texaphyrin rather than neutralizing hydroxyl radicals, allowing hydroxyl radicals to cause cellular damage, ii) a relatively stable texaphyrin radical that reacts readily to covalently modify neighboring molecules causing further cellular damage, iii) intrinsic biolocalization, and iv) indifference to the presence or absence of O.sub.2. These properties allow texaphyrins to be particularly effective for treating the hypoxic areas of solid neoplasms. Methods of treatment for an individual having a neoplasm or atheroma include the use of a texaphyrin as a radiation sensitizer and as an agent for photodynamic tumor therapy, or the use of a texaphyrin for internal and for external ionizing radiation. Novel texaphyrins are provided.

26. 5,576,208, Nov. 19, 1996, Antisense oligonucleotide inhibition of the RAS gene; Brett P. Monia, et al., 435/375, 172.3, 377; 536/24.5; 935/34 :IMAGE AVAILABLE:

US PAT NO: 5,576,208 :IMAGE AVAILABLE: L12: 26 of 31

ABSTRACT:
Compositions and methods are provided for the modulation of expression of the human ras gene in both the normal and activated forms. Oligonucleotides are provided which are specifically hybridizable with RNA or DNA deriving from the human ras gene, having nucleotide units sufficient in identity and number to effect such specific hybridization. Oligonucleotides specifically hybridizable with a translation initiation site or with the codon-12 mutation of activated ras are provided. Such oligonucleotides can be used for diagnostics as well as for research purposes. Methods are also disclosed for modulating ras gene expression in cells and tissues using the oligonucleotides provided, and for specific modulation of expression of the activated ras gene. Methods for diagnosis, detection and treatment of conditions arising from the activation of the H-ras gene are also disclosed.

27. 5,563,255, Oct. 8, 1996, Antisense oligonucleotide modulation of raf gene expression; Brett P. Monia, et al., 536/24.31; 435/6; 536/24.1, 24.5

:IMAGE AVAILABLE:

US PAT NO: 5,563,255 :IMAGE AVAILABLE: L12: 27 of 31

ABSTRACT:
Oligonucleotides are provided which are targeted to nucleic acids encoding human raf and capable of inhibiting raf expression. In preferred embodiments, the oligonucleotides are targeted to mRNA encoding human c-raf or human A-raf. The oligonucleotides may have chemical modifications at one or more positions and may be chimeric oligonucleotides. Methods of inhibiting the expression of human raf using oligonucleotides of the invention are also provided. The present invention further comprises methods of detecting the presence of a raf gene using oligonucleotides of the invention, including methods for specific detection of activated truncated raf. Methods of inhibiting hyperproliferation of cells and methods of treating conditions arising from abnormal raf expression which employ oligonucleotides of the invention are also provided.

28. 5,514,577, May 7, 1996, Oligonucleotide therapies for modulating the effects of herpes viruses; Kenneth G. Draper, et al., 435/238; 514/44; 536/23.1, 24.5; 935/34 :IMAGE AVAILABLE:

US PAT NO: 5,514,577 :IMAGE AVAILABLE: L12: 28 of 31

ABSTRACT:
Compositions and methods are provided for the treatment and diagnosis of herpesvirus infections. In accordance with preferred embodiments, oligonucleotides are provided which are specifically hybridizable with RNA or DNA deriving from a herpesvirus gene corresponding to one of the open reading frames UL5, UL8, UL9, UL20, UL27, UL29, UL30, UL42, UL52 and IE175 of herpes simplex virus type 1. The oligonucleotide comprises nucleotide units sufficient in identity and number to effect said specific hybridization. In other preferred embodiments, the oligonucleotides are specifically hybridizable with a translation initiation site, a coding region or a 5'-untranslated region. Methods of treating animals suspected of being infected with herpesvirus comprising contacting the animal with an oligonucleotide of the invention are disclosed. Methods for treatment of infections caused by herpes simplex virus type 1, herpes simplex virus type 2, cytomegalovirus, human herpes virus 6, Epstein Barr virus or varicella zoster virus are disclosed.

29. 5,512,438, Apr. 30, 1996, Inhibiting RNA expression by forming a pseudo-half-knot RNA at the target's; David Ecker, 435/6, 5; 536/24.5; 935/33 :IMAGE AVAILABLE:

US PAT NO: 5,512,438 :IMAGE AVAILABLE: L12: 29 of 31

ABSTRACT:
Compositions and methods for modulating the activity of RNA are provided. Oligonucleotides are hybridized with an RNA structure to form a stable heteroduplex so that the RNA is no longer recognized by its regulatory **protein** after oligonucleotide binding. Reactive moieties can be **tethered** to the oligonucleotide that enhance its activity. Antisense oligonucleotides directed against HIV TAR are provided.

30. 5,510,239, Apr. 23, 1996, Oligonucleotide modulation of multidrug resistance-associated **protein**; Edgardo Baracchini, Jr., et al., 435/6; 514/44; 536/23.1, 24.5; 935/34, 36 :IMAGE AVAILABLE:

US PAT NO: 5,510,239 :IMAGE AVAILABLE: L12: 30 of 31

ABSTRACT:
Compositions and methods are provided for the treatment and diagnosis of diseases or conditions amenable to treatment through modulation of the synthesis or metabolism of multidrug resistance-associated **protein** (MRP). In accordance with preferred embodiments, oligonucleotides are provided which are specifically hybridizable with nucleic acids encoding multidrug resistance-associated **protein** (MRP). Methods of treating animals suffering from diseases or conditions amenable to therapeutic intervention by modulating multidrug resistance with an oligonucleotides specifically hybridizable with RNA or DNA corresponding to multidrug resistance-associated **protein** (MRP) are disclosed. Methods of preventing the development of multidrug resistance and of improving the efficacy of chemotherapy are also-disclosed.

31. 5,502,177, Mar. 26, 1996, Pyrimidine derivatives for labeled binding partners; Mark D. Matteucci, et al., 536/26.6; 544/102, 103 :IMAGE AVAILABLE:

US PAT NO: 5,502,177 :IMAGE AVAILABLE: L12: 31 of 31

ABSTRACT:
A compound having the structure: ##STR1## wherein R.sup.1 is an oligonucleotide;
a is 1 and b is 0;
A is C or CH;
X is S, O, NH or NCH.sub.2 R.sup.6 ;
Z is taken together with A to form an aryl ring structure comprising 6 ring atoms wherein the aryl ring carbon atoms are unsubstituted with

other than H or at least 1 nonbridging ring carbon atom is substituted with R.sup.6 or .dbd.O;

R.sup.6 is independently H, C.sub.1 -C.sub.6 alkyl, C.sub.2 -C.sub.6 alkenyl, C.sub.2 -C.sub.6 alkynyl, NO.sub.2, N(R.sup.3).sub.2, C.tbd.N or halo, or an R.sup.6 is taken together with an adjacent Z group R.sup.6 to complete a phenyl ring; and

R.sup.3 is a protecting group or H; and tautomers, solvates and salts thereof.

(FILE 'USPAT' ENTERED AT 18:16:40 ON 26 JAN 1998)

L1 2163 S NIELSEN?/IN OR BUCHARDT?/IN OR SONNICHSEN?/IN OR LOHSE?/IN

L2 985 S PNA OR PEPTIDE(W)NUCLEIC

L3 232 S CONJUGAT? AND L2

L4 3 S L1 AND L3

L5 229 S L3 NOT L4

L6 157855 S REPORTER OR STERIOD OR CARBOHYDRATE OR TERPENE OR PEPTID

E O

L7 208 S L5 AND L6

L8 722182 S BASE OR NUCLEOBASE

L9 149 S L8 AND L7

L10 142 S L9 AND (LINK? OR TETHER?)

L11 4612 S BASE(2A)ANALOG? OR BASE(2A)MODIF?

L12 31 S L11 AND L10